UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,081	03/24/2004	Matthew D. Whittton	GP-303000	5371

7590 10/28/2008

CHRISTOPHER DEVRIES
General Motors Corporation
Legal Staff, Mail Code 482-C23-B21
P.O. Box 300
Detroit, MI 48265-3000

EXAMINER	
JEN, MINGJEN	

ART UNIT	PAPER NUMBER
3664	

MAIL DATE	DELIVERY MODE
10/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/808,081	Applicant(s) WHITTTON, MATTHEW D.	
	Examiner IAN JEN	Art Unit 3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 July 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/24/2004*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is response to amendment received on July 7th, 2008.

2. Claims 1- 11 are pending in application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minowa et al (US Pat No. 6243637) in view of Narita (US Pat No 5241477).

As per claim 1, Minowa et al shows an automatic transmission having an off-going clutch and an on-coming clutch during a speed ratio shift event (Abstract), on-coming clutch (Col 1, lines 10-50), off-going clutch (Col 1, lines 10-50), controlling clutch using closed loop control to maintain a predetermined slip threshold to avoid slipping (Col, lines 59-63 where slip range is confined by turbine torque, oil pressure; Col 3, lines 25-30; Col 6 , lines 66-Col 7, lines 30),

controlling clutch generating an pressure command to which is responsive and that varies with respect to time (Fig 12, Col 2, lines 1-15; Col 2, lines 64-Col 3, lines 8; Col 6, lines 32 -35); causing the clutch to gain torque capacity during controlling the clutch (Fig 7: Col 2, lines 1-15; Col 2 , lines 64 - Col 3, lines 8; Col 5, lines 35 -40) determining at least a portion of the clutch pressure command (Col 9 ,lines 55 - Col 10, lines 40). Minowa et al does not show determining when the clutch gained torque capacity using the first derivative with respect to time.

Narita et al shows when the clutch gained torque capacity using the first derivative (Fig 11, Col 3, lines 60- Col 4, lines 25; Col 9, lines 53-64); the first derivative with respect to time (Fig 11, Col 2, lines 14-15; Col 7,lines 5 - 10).

It would have been obvious for one of ordinary skill in the art, to provide the first derivative technique for calculating the timing for clutch gaining the torque capacity, as taught by Narita, to Minowa et al, for providing a practical data analyze tool.

As per claim 6, Minowa et al shows a control apparatus for an automatic transmission having an input shaft and an output shaft (Fig 13, input shaft 18, output shaft 24 ; Col 4, lines 46-67); a first clutch and a second clutch (Abstract, Col 5, lines 53-55); on-coming clutch (Col 1, lines 10-50), off-going clutch (Col 1, lines 10-50); clutches are operatively connected between the shafts to effect a speed ratio change during a shift event by disengagement and engagement of the clutch (Col 4, lines 46- Col 5, lines 3); the controller is programmed and configured to determine the speed ratio between shafts (Controller 31, Input shaft speed Nt, Output shaft speed Ne; Col 2, lines 50 – Col 3, lines 25; Col 4, lines 45 – Col 6, lines 40; Col 6,

lines 66 - Col 7, lines 30) in order to determine the existence of a predetermined slip threshold at clutch (Col 2, lines 50 – Col 3, lines 25; Col 4, lines 45 – Col 6, lines 40; Col 6, lines 66 - Col 7, lines 30); the controller is programmed and configured to control clutch during the shift event using closed loop control (Col 2, lines 50 – Col 3, lines 25; Col 4, lines 45 – Col 6, lines 40; Col 6, lines 66 - Col 7, lines 30) to maintain the predetermined slip threshold by generating an pressure command (Fig 12, Col 2, lines 1-15; Col 2, lines 64-Col 3, lines 8; Col 6, lines 32 -35) to which the clutch is responsive that varies with respect to time (Fig 12, Col 2, lines 1-15; Col 2, lines 64 - Col 3, lines 8; Col 6, lines 32 -35) ; the controller is programmed and configured to cause the clutch to gain torque capacity during the shift event (Abstract, Fig 7: Col 2, lines 1-15; Col 2 , lines 64 - Col 3, lines 8; Col 5, lines 35 -40); determine at least a portion of the of clutch pressure command (Col 9 ,lines 55 - Col 10, lines 40). Minowa et al does not show a first and second fill chamber to which hydraulic fluid is supplied for hydraulic actuation of the first and second clutch, respectively; a first and second actuator configured to selectively allow pressurized fluid into the first and second fill chamber, respectively. A controller operatively connected to the first actuator and the second actuator to cause selective clutch, respectively; the first derivative with respect to time; to determine when the clutch gained torque capacity using the first derivative.

Narita et al shows a first and second fill chamber (Col 2, lines 65 - Col 3, lines 35, Fig 2A, 2B, accumulator change 64e, backup pressure chamber 64d, second servo apply chamber 2S/A); a first and second actuator (Col 2, lines 65 - Col 3, lines 35, hydraulic circuit 113,114,38) ; fill chamber to which hydraulic fluid is supplied for hydraulic actuation of clutch,

respectively (Col 2, lines 65 - Col 3, lines 35); actuator configured to selectively allow pressurized fluid into fill chamber, respectively (Col 2, lines 65 - Col 3, lines 35).

A controller operatively connected actuator to cause selective clutch, respectively; when the clutch gained torque capacity using the first derivative (Fig 11, Col 3, lines 60- Col 4, lines 25; Col 9, lines 53-64); the first derivative with respect to time (Col 7, lines 5-10 where the data points are plotted with respect to recorded time; Col 2, lines 14-15).

It would have been obvious for one of ordinary skill in the art, to provide the first derivative technique for calculating the timing for clutch gaining the torque capacity, as taught by Narita, to Minowa et al, for providing a practical data analyze tool and provide to provide hydraulically means, as taught by Narita et al, to Minowa et al, in order to perform shifting.

5. Claims 2-5, 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minowa et al (US Pat No. 6243637) in view of Narita (US Pat No 5241477) and further in view of Vilim et al (US Pat No 5745382).

As per claim 2, Minowa et al shows a on-coming clutch (Col 1, lines 10-50), clutch gained torque capacity (Fig 7; Col 5, lines 35 -40). Minowa et al in view of Narita does not show a neural network method.

Vilim et al shows a neural network method (Fig 2, Col 3, lines 40-Col 4, lines 37; Col 2, lines 1-15; Col 2, lines 64-Col 3, lines 8).

It would have been obvious for one of ordinary skill in the art to provide a neural network method to Minowa et al, as taught by Vilim et al, for the purpose of providing automated teaching model for complex dynamic system

As per claim 3, Minowa et al shows on-coming clutch (Col 1, lines 10-50). Minowa et al does not show the first derivative is characterized by local minima and maxima, and determining when the on-coming clutch gained torque capacity includes generating a set of data points, each of the data points including a time value and a first derivative value of one of the local minima or maxima.

Narita shows the first derivative is characterized by local minima and maxima and determining when the clutch gain torque capacity (Fig 11, Col 3, lines 60 - Col 4, lines 25; Col 9, lines 53-64); generating a set of data points, each of the data points including a time value and a first derivative value of one of the local minima or maxima (Col 7, lines 5-10 where the data points are plotted with respect to recorded time in Fig 11; Col 2, lines 14-15).

It would have been obvious for one of ordinary skill in the art to provide a first derivative technique to measure local maxima and minima to Minowa et al, as taught by Narita, since first derivative is the rate of change provides measure to torque peak or torque down by local maxima and minima.

As per claim 4, Minowa et al does not show classifying each of the data points into one of a first group and a second group using a k-means algorithm, the data points in the second

group having later time values than the data points in the first group; and determining the data point having the earliest time value in the second group.

Vilim et al shows the method further comprising classify each of the data point into one of a first group and a second groups using a k -means algorithm(Col 5, lines 49-65; Col 7 ,liens 43-Col 8, lines 15), the data point in the second group having later time values than the data pint in the first group and determining the data point having the earliest time value in the second groups(fig 4A, Fig 4B; Col 9, lines 1- Col 10, lines 15 where Class II data point have later time values and Class II data point starts at 0 sec, which is the earliest time value). It would have been obvious for one of ordinary skill in the art to provide a commonly well k means algorithm by clustering data into different groups with respect to different to Minowa et al, as taught by Vilim et al, a well known qualitative means for the purpose of providing parameter values for data signal presented for viewing.

As per claim 5, Minowa et al shows on-coming clutch (Col 1, lines 10-50), off-going clutch (Col 1, lines 10-50); causing the clutch to gain torque capacity (Fig 7: Col 2, lines 1-15; Col 2 , lines 64 - Col 3, lines 8; Col 5, lines 35 -40)

Minowa et al does not show the clutch includes an apply chamber, the clutch is hydraulically actuated by filling the apply chamber with fluid, supplying fluid to the apply chamber, determining a measure of the total volume of fluid supplied to the apply chamber at the time value of the data point having the earliest time value in the second group.

Narita et al shows the clutch includes an apply chamber, the clutch is hydraulically actuated by filling the apply chamber with fluid (Col 3, lines 1-15), supplying fluid to the apply

chamber (Col 3, lines 1 -15; Col 3, lines 60- Col 4, lines 15; Col 10, lines 35 -43 where the fluid pressure is the driving mean for clutch and the clutch gains the torque capacity by the control of fluid pressure), determining a measure of the total volume of fluid supplied to the apply chamber at the time value of the data point having the earliest time value in the second group (Fig 11, Col 3, lines 40-57 where total fluid volume is measure in fluid pressure density at the earliest time value in the second group starts at 0 sec).

It would have been obvious for one of ordinary skill in the art to provide the hydraulically actuate chamber, as taught by Narita et al, to Minowa et al, in order to provide a actuation means for the clutch due to the fluid pressure.

As for claim 7, Minowa et al shows on-coming clutch (Col 1, lines 10-50), off-going clutch (Col 1, lines 10-50); the controller is programmed and determine when the clutch gained torque capacity using the first derivative (Col 9, lines 55- Col 10, lines 40). Minowa et al does not show using a neural network method.

Vilim et al shows a neural network method (Fig 2, Col 3, lines 40-Col 4, lines 37; Col 2, lines 1-15; Col 2, lines 64-Col 3, lines 8).

It would have been obvious for one of ordinary skill in the art to provide a neural network method to Minowa et al, as taught by Vilim et al, for the purpose of providing automated teaching model for complex dynamic system

As for claim 8, Minowa et al does not show the control apparatus wherein the first derivative is characterized by local minima and maxima, and the controller is programmed and

configured to generate a set of data points, each of the data points including a time value and a first derivative value of one of the local minima or maxima.

Narita shows the control apparatus wherein the first derivative is characterized by local minima and maxima(Fig 11, Col 3, line s60- Col 4, lines 25; Col 9, lines 53-64), the controller is programmed and configured to generate a set of data points (Col 7, lines 5-10 where the data points are plotted with respect to recorded time; Col 2, lines 14-15), each of the data points including a time value and a first derivative value of one of the local minima or maxima(Col 7, lines 5-10 ; Fig 11; Col 2, lines 14-15).

It would have been obvious for one of ordinary skill in the art to provide the first derivative measurement to mathematical local maxima and minima as taught by Narita, to Minowa et al, in order to provide the desired rate of change information.

As for claim 9, Minowa et al does not show the control apparatus where the controller is programmed and configured to classify each of the data points into one of a first group and a second group using a k-means algorithm, the data points in the second group having later time values than the data points in the first group, and wherein the controller is programmed and configured to determine the data point having the earliest time value in the second group.

Vilim et al shows the control apparatus where the controller is programmed and configured to classify each of the data points into one of a first group and a second group using a k-means algorithm(Col 5, lines 49-65; Col 7, lines 43 - Col 8, lines 15), the data points in the second group having later time values than the data points in the first group, and wherein the controller is programmed and configured to determine the data point having the earliest time

value in the second group(Fig 4A, Fig 4B; Col 9 ,lines 1- Col 10, lines 15 where class II data point have later time values and Class II data point state at 0 Sec, which is the earliest time value).

It would have been obvious for one of ordinary skill in the art to provide k means algorithm by clustering data in group and time as taught by Vilim et al, to Minowa et al, for providing a determination and visualization in data parameters.

As for claim 10, Minowa et al does not show the control apparatus, wherein the controller is programmed and configured to determine a measure of the total volume of fluid supplied to the apply chamber at the data point having the earliest time value in the second group.

Narita shows the control apparatus where the controller is programmed and configured to determine a measure of the total volume of fluid supplied to the apply chamber (Fig 11, Col 3, lines 40-57; Col 3, lines 1-15; Col 3, lines 60-Col 4, lines 15).

Vilim et al shows the data point having the earliest time value in the second group (Fig 4A, Fig 4B; Col 9 ,lines 1- Col 10, lines 15 where class II data point have later time values and Class II data point state at 0 Sec, which is the earliest time value)

It would have been obvious for one of ordinary skill in the art, to provide the fluid volume determine means, as taught by Narita, along with the data analyze means, as taught by Vilim et al, to Minowa et al, in order to provide a fluid volume data analyze means.

As for claim 11, Minowa et al shows a method for use with an automatic transmission having an off-going clutch and an on-coming clutch during a speed ratio shift event (abstract),

on-coming clutch (Col 1, lines 10-50), off-going clutch (Col 1, lines 10-50); controlling the clutch using closed loop control to maintain a predetermined slip threshold avoid slip (Col 2, lines 59-63 where slip is controlled by turbine torque, oil pressure; Col 3, lines 25-30; Col 6, lines 66- Col 7, lines 30), controlling the clutch including generating an clutch pressure command to which the clutch is responsive and that varies with respect to time (Fig 12, Col 2, lines 1-15; Col 2, lines 64- Col 3, lines 8; Col 6, lines 32-35); causing the clutch to gain torque capacity by supplying fluid to the apply chamber during controlling the clutch (Fig 7; Col 5, lines 35-40); determining at least a portion of the clutch pressure command (Col 9, lines 55- Col 10, lines 40).

Minowa et al does not show the clutch being characterized by hydraulic actuation when an apply chamber is filled with sufficiently pressurized fluid; the first derivative with respect to time; first derivative being characterized by local minima and maxima; generating a set of data points, each of the data points including a time value and a first derivative value of one of the local minima or maxima; classifying each of the data points into one of a first group and a second group using a k-means algorithm, the data points in the second group having later time values than the data points in the first group; determining the data point having the earliest time value in the second group; and determining a measure of the total volume of fluid supplied to the apply chamber at the data point having the earliest time value in the second group.

Narita shows the clutch being characterized by hydraulic actuation when an apply chamber is filled with sufficiently pressurized fluid (Col 2, lines 65 – Col 3, lines 35); first derivative being characterized by local minima and maxima (Col 7, lines 5-10 where the data points are plotted with respect to recorded time in Fig 11; Col 2, lines 14-15); generating a set of

data points, each of the data points including a time value and a first derivative value of one of the local minima or maxima (Col 7, lines 5-10 where the data points are plotted with respect to recorded time in Fig 11; Col 2, lines 14-15);

Vilim et al shows classifying each of the data points into one of a first group and a second group using a k-means algorithm (Col 5, lines 49-65; Col 7, lines 43- Col 8, lines 15), the data points in the second group having later time values than the data points in the first group (Fig 4, Col 9, lines 1- Col 10, lines 15); determining the data point having the earliest time value in the second group; and determining a measure of the total volume of fluid supplied to the apply chamber at the data point having the earliest time value in the second group (Fig 11, Col 3, lines 40-57).

It would have been obvious for one of ordinary skill in the art, to provide the first derivative technique, as taught by Narita along with the data distribution means as taught by Vilim et al, to Minowa et al, for providing a practical data analyze tool.

Response to Arguments

6. In response to applicant's argument that the rejection of claim 1 and 6 are improper because the one of ordinary skill in the art's analysis of the Graham factual inquiries is flawed. Applicant's attention is directed to MPEP § 2143 Basic Requirements of a Prima Facie of Obviousness where MPEP § 2143.01 states the prior art must suggest the desirability of the claimed invention. Applicant's attention is further directed MPEP § 904.02(a) where indicates the proper classification search guideline for the prior art reference where the primary reference Minowa et al (US Pat No. 6243637) classified in class 701/51, directed to transmission control

suggested the desirability of automatic transmission controlled by clutch based on timing, as the same with the claimed invention Whitton et al; where Narita (US Pat No 5241477) classified in the class 364/424, cross reference with class 701/66, subclass of 701/51. Applicant’s attention is further directed to MPEP § 2143.02 states reasonable expectation of success is required; obviousness requires only a reasonable expectation of success. Applicant’s attention is further directed to Minowa et al and Narita, where Minowa et al provides a known device and method, off going clutch, on going clutch and clutch generated pressure command; Narita provides known method, first derivative technique, which also exhibited on Minowa et al, Fig 11, 50 where it is obvious for one of ordinary skill in the art to provide a known technique/method, that provided by Narita, to a known device/method of Minowa et al ready for improvement to yield predictable results. Applicant’s attention is further directed MPEP § 2143.03 states where all the claim limitation need to be addressed. Applicant’s attention is further direct to claim rejection of claim 1 and claim 6 where all the claim limitation has been addressed.

7. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Minowa et al shows on-going clutch, off-going clutch, clutch generated pressure command, Narita shows first derivative with respect to time; Minowa et al provides a

known device and method, off going clutch, on going clutch and clutch generated pressure command; Narita provides known method, first derivative technique, which also exhibited on Minowa et al, Fig 11, 50 where it is obvious for one of ordinary skill in the art to provide a known technique/method, that provided by Narita, to a known device/method of Minowa et al ready for improvement to yield predictable results.

8. In response to applicant’s argument that Fig 11 of Minowa et al fails to show determining the first derivative of time for any variable of function, it is noted that the features upon which applicant relies (i.e., where for any variable of function that implemented by first derivative of time; first time derivative of gear ratio G) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

9. In response to applicant's argument that Vilim et al does not show the recited claim limitation that missed from claim 1 missing from Minowa et al. Applicant’s attention is directed to claim 1 rejection where each and every claim limitation is addressed. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, where

a known technique/method, neural network system, that is provided by Vilim et al, to a known device/method, transmission, clutch, clutch control of transmission of Minowa et al to ready for improvement to yield predictable results.

10. In response to applicant's argument that Narita does not show first derivative with respect to time of at least a portion of the off-going clutch. Applicant's attention is further directed to Narita where shows first derivative being characterized by local minima and maxima which recited in the claim limitation of claim 11 (Col 7, lines 5-10 where the data points are plotted with respect to recorded time in Fig 11; Col 2, lines 14-15). Applicant's attention is further directed to section 6, 7, where the argument regarding the first derivative with respect to time of at least a portion of the off-going clutch pressure command is addressed

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IAN JEN whose telephone number is (571)270-3274.The examiner can normally be reached on Monday - Friday 9:00-6:00 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ian Jen/
Examiner, Art Unit 3664

/KHOI TRAN/

Supervisory Patent Examiner, Art Unit 3664